Program Description

In 1976, Annual Town Meeting established a separate Sewer Fund to insure that the operation, maintenance, and capital improvement of the sewer system would be a financially viable enterprise. As such, all expenses incurred for the system are covered entirely by user fees. The Water/Sewer Division of Concord Public Works is responsible for managing the day-to-day operations of the sewer infrastructure, with a book value of over \$17 million dollars.

Concord's sewer system was originally established in 1900. The system presently consists of a 1.2 million gallon-per-day centralized wastewater treatment facility, two sewer pumping stations, six sewer lift stations, and approximately 29 miles of sewer collection system. The system currently serves 1,692 customers, or approximately one-third of the Town.

FY07 Program Highlights

Phase 1 Sewer Project. In accordance with the funding plan and construction schedule approved at the 2004 Town Meeting, sewer extension activities were completed in the East Concord (Elm Brook) neighborhood as part of the Phase 1 Sewer Project. Albanese Brothers, Inc. of Dracut, Massachusetts, working under a multi-year contract, installed a neighborhood lift station required to pump the wastewater from East Concord to the existing wastewater treatment plant. Earth Tech, Inc. of Concord, Massachusetts, provided engineering support services.

Pumping Station Equipment/Structures: Camp Dresser & McKee of Cambridge, Massachusetts performed a comprehensive survey of 1980s facilities, including four neighborhood lift stations and two pumping stations. Report stated that all facilities where well maintained and in good working condition.

Inflow/Infiltration. The wastewater treatment plant (WWTP) currently receives about one million gallons per day of wastewater. An ongoing inflow and infiltration (I/I) program has been developed to reduce the groundwater/stormwater presently entering the collection system through deteriorating pipes or illicit stormwater connections. National Water Main Cleaning Company of Hyde Park, Massachusetts, is working under a three-year contract to perform sewer system inspection and rehabilitation activities including TV inspections of pipes, joint testing and sealing, root control treatment, manhole inspections, cementitious lining of leaky manholes, and miscellaneous cleaning services.

Wastewater Treatment Plant Facilities Improvements. In 2005, Town Meeting authorized borrowing 12 million dollars for the design and construction of treatment plant facility improvements. The project involves replacement of equipment that is nearing the end of its useful life, upgrades to a new headworks and UV disinfection system, and installation of the proprietary CoMag system for tertiary treatment. Waterline Industries of Seabrook, New Hampshire, was awarded the construction contract. Camp Dresser & McKee of Cambridge, Massachusetts has been retained to perform construction administrative services.

The separately funded CoMag treatment system developed by Cambridge Water Technology of Cambridge, Massachusetts, was delivered to the site. Once in operation, this system will allow the Town to discontinue use of sand filters currently used for final effluent polishing. The new system will provide an extremely high level of treatment, including phosphorus removal, to levels that will benefit the ecosystem in the Concord River.

Integrated Planning Initiative. Municipal wastewater treatment capacity constraints continue to draw broad attention and interest as the Town attempts to define its long-term housing and economic development needs and goals. The Comprehensive Wastewater Management Plan, supported at Town Meeting 2003 and certified at the state Executive Office of Environmental Affairs, clearly identified specific wastewater treatment limitations. It has become increasingly apparent that the Town must develop a long-term wastewater management plan that supports subsequent planning interests and initiatives. In FY07, Concord Public Works partnered with the Department of Planning & Land Management and crafted a Request for Proposals to hire a consulting team to help the Town better understand approaches and opportunities to integrate these planning efforts. As a result of this effort, a multi-year contract for the Integrated Planning Initiative has been awarded to Weston & Sampson Engineers (Peabody, MA), who has partnered with Taintor Associates (Newburyport, MA).

FY08 Capital Plan

COLLECTION SYSTEM

Station Structures: \$10,000

Annual capital outlay for improvements and replacement of structures including six neighborhood lift stations and two main pump stations.

Station Equipment: \$150,000

Annual capital outlay for improvements and replacement of equipment housed within six neighborhood lift stations and two main pump stations. Equipment required to control, monitor, pump, store, and treat wastewater en route to WWTP including motors, pumps, motor control panels, and air compressors. Improvements to be made on electrical and control systems include integration of new Supervisor Control and Data Acquisition (SCADA) technology at four neighborhood lift stations.

Inflow/Infiltration: \$100,000

The wastewater treatment plant currently receives about one million gallons of sewer flow per day. Annual inflow and infiltration (I/I) activities are required to reduce groundwater and stormwater which enters the collection system through deteriorating pipes, leaking manholes or illicit stormwater connections. An active and annual I/I program is also a requirement of our WWTP NPDES permit.

Meter Replacement Program: \$40,000

Sewer fund portion of costs associated with system-wide meter replacement efforts. Investment and effort expanded in coordination with CMLP initiative to adopt radio-read technology which will allow for more progressive meter-reading capabilities. (Water/Sewer 80/20% split.)

Services: \$10,000

Costs associated with the replacement/installation (street to property line) of approximately 2-3 new sewer-service connections to our collection system plus installation of 10-20 service cleanouts in Concord Center to be coordinated with the improvements associated with Roads Program.

Wastewater Management Plan: \$35,000

Completion of Phase I sewer project coupled with accelerated wastewater infill has resulted in anticipated sewer capacity constraints within the municipal sewer system. Broader Town planning and economic development interests have necessitated an evaluation of alternative municipal wastewater management opportunities.

WASTE WATER TREATMENT PLANT

Structures: \$30,000

Annual capital outlay for improvements and replacement of WWTP structures.

Equipment: \$25,000

Annual cost to replace equipment presently in use beyond recommended service life, including motors, pumps, motor control panels, chemical feed systems, and process instrumentation.

Capacity/Treatment Optimization: \$5,530,000

Construction and construction administration costs for major WWTP rehabilitation and improvement project. Funding for project approved at April 2005 Town Meeting (Article 47). The rehabilitation project has been designed to include addition of a new headworks facility, replacement of grit removal equipment, upgrades to the septage receiving area, significant modifications to the sludge handling components, creation of a new building addition to house a pre-purchased tertiary treatment process (CoMag), installation of new ultraviolet disinfection equipment, improved chemical storage and feed systems, electric system upgrades, and integration of a Supervisory Control and Data Acquisition (SCADA) system.

The noted treatment system upgrades involve a magnetically enhanced coagulation process (CoMag) that will allow for advanced phosphorus reduction to limits well below performance standards currently available through most other treatment technologies.

GENERAL PLANT

Keves Road Facility: \$ 12.500

Capital outlay for improvements to Water/Sewer Admin and Garage facilities. Plan is to complete rehabilitation project involving electric room, heating system and field operations work area. (Water/Sewer 80/20% split.)

Miscellaneous Field Equipment and Tools: \$2,000

Miscellaneous equipment not included in 5-yr capital equipment/vehicle plan.

Vehicles: \$ 9.000

Water/Sewer Fleet consists of 15 vehicles and miscellaneous service equipment such as compressor, vacuum, etc., which are replaced in accordance with CPW criteria based on industry accepted useful life measures.

FY08 Operating Budget

For FY08, the most significant change in the operating budget is an increase of \$58,760 in the management contract for the Wastewater Treatment Plant. The cost increase includes an additional operator and other costs related to the operation of the CoMag facility, once it comes on line, as well as increases in the volume of septage treatment.

The large increase in depreciation expense (\$161,040) projected between FY07 and FY08 is the result of the significant amount of capital spending on Wastewater Treatment Plant improvements that is occurring during the current year.

SEWER FUND FUND 60

OPERATING REVENUES (\$)

	FY2005	FY2006	FY2007	FY2008		
	Actual	Actual	Rev. Budget	Estimate		
Sewer User Fees (a)	1,712,446	1,818,232	1,865,000	1,964,000		
Sewer Service Charges	4,597	9,732	9,000	9,000		
Septage Fees	36,827	87,633	95,000	95,000		
Liens & Tax Titles	7,802	6,224	9,000	9,000		
Other Revenue	2,556	3,458	3,000	3,000		
Operating Revenue Total	1,764,228	1,925,279	1,981,000	2,080,000		
(a) Sewer Improvement Fees are included in non-operating income.						

OPERATING EXPENSES (\$)

	FY2005	FY2006	FY2007	FY2008
	Actual	Actual	Rev. Budget	Estimate
DIVISION - Sewer Collection System:				
Personal Services	209,730	203,822	214,233	225,846
Purchased Services	80,967	136,290	105,456	108,234
Supplies & Materials	34,261	42,548	39,242	43,791
Other Charges & Expenses	11,351	5,762	13,811	13,856
General Fund Services	73,263	75,043	77,009	79,956
Collection System Subtotal	409,571	463,464	449,751	471,683
DIVISION - Wastewater Treatment Plant:				
Personal Services	35,940	37,696	42,716	43,135
Purchased Services	75,877	958	10,400	10,400
Management Contract	459,134	492,304	544,655	603,415
Supplies & Materials	388	805	375	375
Other Charges & Expenses	3,225	82	3,445	3,445
General Fund Services	74,777	75,042	77,008	79,955
Treatment Plant Subtotal	649,341	606,887	678,599	740,725
Depreciation Expense	628,375	841,574	984,113	1,145,150
Audit Adjustment	0	(83,786) (b)	•	0
Operating Expense Total	1,687,287	1,828,139	2,112,463	2,357,558

⁽b) One-time depreciation reclassification adjustment resulting from conversion to an automated fixed-asset tracking system.

SEWER FUND

FUND 60

AUTHORIZED POSITIONS (\$)

			Fiscal Ye	ear 2007	Fiscal Ye	ar 2008
<u>Code</u>	Position Title	<u>Grade</u>	# Positions	\$ Amount	# Positions	\$ Amount
DIVISI	ON - Sewer Collection Syst	em:				
5111	W/S Superintendent	MP-10	0.20	17,063	0.20	17,134
	Asst. to Superintendent	MP-5	0.20	13,375	0.20	13,426
	Environmental Analyst	MP-3	0.20	9,417	0.20	9,463
	Adminstrative Assistant	ACL-5	0.20	9,314	0.20	9,340
	Public Works Superv.	LA-8	0.40	23,903	0.40	24,500
	Crew Leader	LA-5	0.40	20,754	0.40	20,834
	Treatment Syst. Oper.	LA-4	0.40	16,855	0.40	17,329
	System Maintainer IS Support:	LA-3	1.00	35,839	1.00	38,167
	Technical Admin.	MP-8	0.01	675	0.01	675
	Info. Systems Asst.	MP-1	<u>0.01</u>	453	0.01	453
	Subtotals		3.02	147,648	3.02	151,321
Standl	oy Pay		680 hrs.	18,179	680 hrs.	18,455
5120	GIS Intern	\$10/hr.	83 hrs.	1,600	160 hrs.	2,400
5130	Overtime		600 hrs.	19,043	400 hrs.	13,170
5131	Police Details		180 hrs.	7,200	90 hrs.	3,600
517X	Group Insurance:					
	Workers Compensation			0		75
	Health, Life, Dental			15,620		16,000
						1,600
	Retirement			6,100		8,938
	Soc. Sec. & Medicare Tax			2,480		2,000
51XX	Allowance for Salary Increas	ses:		APT-00-11-00-11-00-11-00-11-00-11-00-11-00-11-00-11-00-11-00-11-00-11-00-11-00-11-00-11-00-11-00-11-00-11-00-1		
	Regular Pay			0		8,489
	Overtime Pay			0		659
	Budgeted Charges					
	to Snow Account		170 hrs.	(3,637)	170 hrs.	(860)
	Salary Totals			214,233		225,846
			-continued-			

SEWER FUND FUND 60

AUTHORIZED POSITIONS (\$) (cont.)

		Fiscal Ye	ear 2007	Fiscal Ye	ear 2008
Code Position Title	<u>Grade</u>	# Positions	\$ Amount	# Positions	\$ Amount
DIVISION - Wastewater Treatm	ent Plant:				
5111 Operations Engineer	MP-7	0.60	38,216	0.60	38,390
517X Group Insurance: Health, Life, Dental Retirement Social Security & Medica	re Tax		3,880 0 620		2,325 0 500
51XX Allowance for Salary Incr Regular Pay Subtota	eases:		0 42,716		1,920 43,135
Sewer F	und Totals		256,949		268,981

DEBT SERVICE (\$)

Long-term Debt Repayment Schedule:						
		FY2005	FY2006	FY2007	FY2008	
		Actual	Actual	Budget	Estimate	
DIVISION - Sewer Collection	System:					
Principal		0	0	194,715	641,194	
Interest		0_	0 -	118,141	353,927	
	Subtotals	0	0	312,856	995,121	
Add:						
BAN Interest		0	29,917	0	0	
Debt Issuance Expense		0_	6,000	0_	0	
	Totals	0	35,917	312,856	995,121	

SEWER FUND FUND 60

PAYMENTS TO THE GENERAL FUND (\$)

	FY2005 Actual	FY2006 Actual	FY2007 Rev. Budget	FY2008 Estimate
Management & Engineering Svcs.	55,197	53,852	55,500	57,965
Financial & Administrative Svcs.	62,543	64,511	66,353	68,806
Natural Resource Protection	30,300	31,723	32,164	33,140_
Subtotal:	148,040	150,086	154,017	159,911

NET INCOME (\$)

	FY2005	FY2006	FY2007	FY2008
	Actual	Actual	Rev. Budget	Estimate
Statement of Net Income:			•	
Operating Revenues	1,764,228	1,925,279	1,981,000	2,080,000
Less Operating Expenses	(1,687,287)	(1,828,139)	(2,112,463)	(2,357,558)
Operating Income	76,941	97,140	(131,463)	(277,558)
Add:				
Investment Income	117,792	203,641	200,000	191,000
State grants	0	12,304	0	0
Betterment Support - CWMP, Phase I	0	0	175,000	159,000
Sewer Improvement Fees	108,948_	564,413	170,000	93,000
Gross Income	303,681	877,498	413,537	165,442
Less:				
Short-Term Debt Interest Expense	0 4	(35,917)	0	0
Long-Term Debt Interest Expense:				
Supported from Sewer Operations	0	0	(38,100)	(302,256)
Supported from Betterments	0	0	(80,041)	(51,671)
Other Adjustments	3,480	. 0	0	0
Net Income	307,161	841,581	295,396	(188,485)

AVAILABLE RESOURCES (\$)

Resources Available from Current Operations for Replacement & Renewal of Plant:

	FY2005	FY2006	FY2007	FY2008
	Actual	Actual	Rev. Budget	<u>Estimate</u>
From:				
Depreciation Expense	628,375	841,574	984,113	1,145,150
Net Income	307,161	841,581	295,396	(188,485)
Subtotals	935,536	1,683,155	1,279,509	956,665
Less:				
Debt Principal Repayment				
From Sewer Operations	0	0	(100,000)	(533,827)
From Betterments	0	0	(94,715)	(107,367)
Net Available for Capital Purposes	935,536	1,683,155	1,084,794	315,471

SEWER FUND

FUND 60

CAPITAL SPENDING PLAN (\$)

	FY2005	FY2006	FY2007	FY2008
Uses of Resources:	Actual	Actual	Rev. Budget	Estimate
DIVISION - Sewer Collection System:				
Vehicle Purchase/Replacement:				
Unit #3: 1997 Sedan (Lum.)/SUV Esc.	0	5,453	0	0
Unit #82 1999 1-Ton Pickup (3500)	0	0	4,640	0
Unit #83 1999 Rack (3500, Compr. Truck)	0	0	3,490	0
Unit #84 1998 S-10	0	0	0	4,000
Unit #85 2002 Chevy C2500	0	0	0	4,600
Unit #87 1999 1-Ton Dump (3500)	0	0	10,170	0
Unit #88: 1996 Pick-up (Enclosed Bed)	0	11,793	0	0
1996 Crane and Air Compressor	0	4,254	0	0
Unit #92: 1990 Backhoe Loader	12,046	0	0	0
Unit #99 2005 Pickup (Ext. Cap Colorado)	0	4,118	0	0
Auxiliary Vehicle Items	0	1,182	0	0
Pumping Plant:				
Station Structures	0	0	35,000	10,000
SCADA Upgrade	858	0	0	0
Station Equipment	11,950	31,369	25,000	150,000
Collection Plant:				
Meter Replacement Program	6,158	35,391	32,000	40,000
New/Replacement Mains	2,796	590,377	21,000	0
Infiltration/Inflow Remediation	28,026	16,467	160,000	100,000
Service Connections	0	0	4,000	10,000
CWMP Construction	0	0	675,000	0
Misc. Capital Costs:				
Keyes Road Facility	0	1,019	20,000	12,500
Computer Software & Hardware	750	2,500	0	0
Miscellaneous Equipment	1,504	3,143	2,000	2,000
GIS	0	0	4,000	0
	-continued-			
	COMMINGU"			

FUND 60

SEWER FUND

CAPITAL SPENDING PLAN (\$) (cont'd)

	FY2005	FY2006	FY2007	FY2008
Uses of Resources (continued)	Actual	Actual	Rev. Budget	Estimate
Wastewater Management Project:	1,989	0	103,000	35,000
Wastewater Management Plan Total Phase 1 Construction Cost	1,414,000	2,101,325	103,000	35,000
Total Thase Toolist delion cost		2,101,020		
Subtotals	1,415,989	2,101,325	103,000	35,000
DIVISION - Wastewater Treatment Plant:				
Structures:	10.510	•	00.000	05.000
Building Equipment Replacement	42,512	0	22,000	25,000
Equipment:				
Plant Equipment Replacement	254,826	29,939	25,000	30,000
Co-Mag Equipment	667,700	2,013,151	100,000	465,000
os mag =qarpmom		_, _ , _ , _ ,	,	
Improvements:				
Design	0	1,110,086	0	0
Construction	0	0	6,250,000	5,065,000
Treatment Plant Subtotals	965,038	3,153,176	6,397,000	5,585,000
Grand Totals	2,445,115	5,961,567	7,496,300	5,953,100

SEWER FUND	FUND 60
	1

USE OF BORROWED FUNDS (\$)

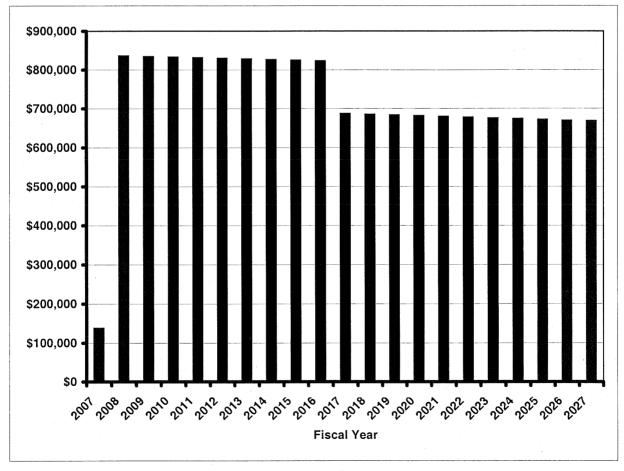
	FY2005 Actual	FY2006 Actual	FY2007 Rev. Budget	FY2008 Estimate
Capital Projects:	-			*************************************
Wastewater Treatment Plant	0	1,000,000	6,250,000	4,750,000
Wastewater Management Project	1,414,000	2,101,325	675,000	0
Totals	1,414,000	3,101,325	6,925,000	4,750,000

RECAP - CIP FINANCING SUMMARY (\$)

	FY2005 Actual	FY2006 Actual	FY2007 Rev. Budget	FY2008 Estimate
TOTAL Spending	2,445,115	5,961,567	7,496,300	5,953,100
Funding Source:				
From Debt Proceeds	1,414,000	3,101,325	6,925,000	4,750,000
From Sewer Fund Cash	1,031,115	2,860,242	571,300	1,203,100
Sewer Fund Cash Available:				
From Current Operations	935,536	1,683,155	1,084,794	315,398
From (to) Fund Balance	95,579	1,177,087	(513,494)	887,702

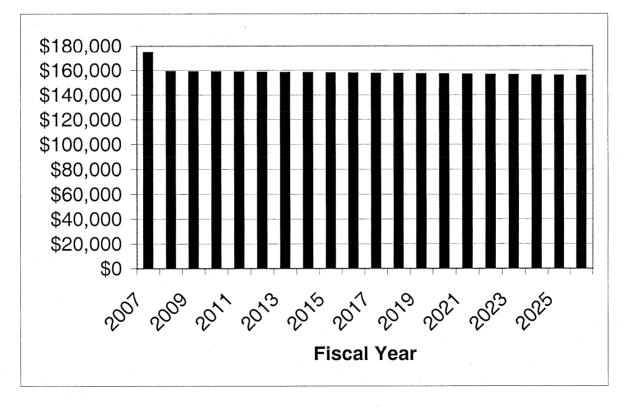
Sewer Debt Service (\$)

Fiscal			
Year	Principal	Interest	Total
2007	\$100,000	\$38,100	\$138,100
2008	533,827	302,256	\$836,083
2009	561,727	272,859	\$834,586
2010	571,055	262,004	\$833,059
2011	580,572	250,929	\$831,501
2012	590,280	239,631	\$829,911
2013	600,185	228,105	\$828,290
2014	610,290	216,346	\$826,636
2015	620,598	204,349	\$824,947
2016	631,116	192,110	\$823,226
2017	541,845	145,148	\$686,993
2018	552,791	132,410	685,201
2019	563,959	119,414	683,373
2020	575,352	106,155	681,507
2021	586,975	92,629	679,604
2022	598,833	78,829	677,662
2023	610,931	64,751	675,682
2024	623,273	50,388	673,661
2025	635,865	35,735	671,600
2026	648,710	20,786	669,496
2027	661,816	6,618	668,434
	Totals \$12,000,000	\$3,059,552	\$15,059,552



Sewer Debt Service (\$) funded from sewer betterment assessments

Fiscal			
Year	Principal	Interest	Total
2007	\$94,715	\$80,041	\$174,756
2008	107,367	51,671	159,038
2009	109,537	49,339	158,876
2010	111,749	46,961	158,710
2011	114,007	44,534	158,541
2012	116,310	42,058	158,368
2013	118,660	39,532	158,192
2014	121,057	36,955	158,012
2015	123,503	34,326	157,829
2016	125,997	31,644	157,641
2017	128,543	28,908	157,451
2018	131,140	26,116	157,256
2019	133,789	23,268	157,057
2020	136,492	20,362	156,854
2021	139,249	17,398	156,647
2022	142,062	14,374	156,436
2023	144,932	11,289	156,221
2024	147,860	8,141	156,001
2025	150,847	4,930	155,777
2026	153,895	1,654	155,549
Totals	\$2,551,711	\$613,501	\$3,165,212



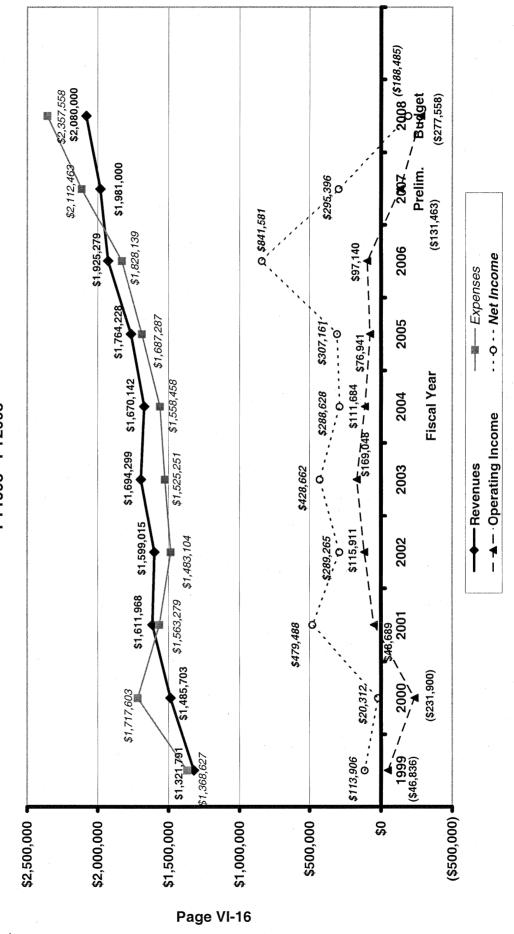
DETAIL OF GENERAL FUND SERVICES PROVIDED TO SEWER FUND (\$)

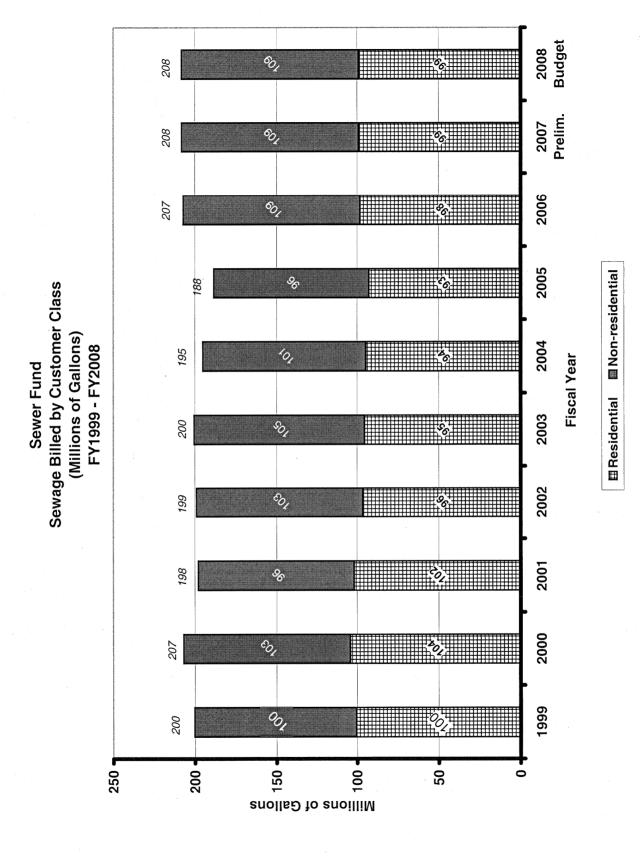
	FY2005 Actual	FY2006 Actual	FY2007 Rev. Budget	FY2008 Estimate
Management & Engineering Services:				
Highway Maintenance	3,418	3,426	3,079	3,532
133/135 Keyes Road Facilities	11,527	10,131	11,949	13,323
Public Works Engineering	13,608	13,741	14,375	14,746
Public Works Administration	26,644	26,554	26,097	26,364
Subtotal	55,197	53,852	55,500	57,965
Financial & Administrative Services:				
Town Manager	20,878	21,930	22,928	23,148
Town Accountant:				
General Services	10,553	10,359	10,225	10,164
Audit Services	5,160	5,400	5,640	6,000
Treasurer-Collector	9,880	9,971	10,143	10,317
Finance Administration	10,764	11,299	11,584	13,403
Personnel Administration	2,542	2,707	2,810	2,751
Town House Facilities	2,766	2,845	3,023	3,023
Subtotal	62,543	64,511	66,353	68,806
Natural Resource Protection:				
Planning	4,800	4,959	5,115	5,100
Natural Resources	4,449	4,584	4,643	4,650
Health	21,051	22,180	22,406	23,390
Subtotal	30,300	31,723	32,164	33,140
Total	148,040	150,086	154,017	159,911

Sewer Fund Sewage Billed, Revenues, Expenses, Operating Income, & Net Income FY1999 - FY2008

	Š	Sewage Billed					
	(Milli	Millions of Gallons	<u>্</u>	Operating	Less Oper	= Operating	Net
Fiscal Year	Resid	Non-resid	Total	Revenues	Expenses	Income	Income
1999	100	100	200	\$1,321,791	\$1,368,627	(\$46,836)	\$113,906
2000	104	103	207	\$1,485,703	\$1,717,603	(\$231,900)	\$20,312
2001	102	96	198	\$1,611,968	\$1,563,279	\$48,689	\$479,488
2002	96	103	199	\$1,599,015	\$1,483,104	\$115,911	\$289,265
2003	92	105	200	\$1,694,299	\$1,525,251	\$169,048	\$428,662
2004	94	101	195	\$1,670,142	\$1,558,458	\$111,684	\$288,628
2005	93	96	188	\$1,764,228	\$1,687,287	\$76,941	\$307,161
2006	98	109	207	\$1,925,279	\$1,828,139	\$97,140	\$841,581
2007 Prelim.	66	109	208	\$1,981,000	\$2,112,463	(\$131,463)	\$295,396
2008 Budget	66	109	208	\$2,080,000	\$2,357,558	(\$277,558)	(\$188,485)

Sewer Fund
Operating Revenues, Expenses, & Income;
Net Income (\$)
FY1998 - FY2008





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SEWER RATES

(Per 100 Cubic Feet)

	Class of Customer	Cı	ırrent	Pro	pposed	%Chg.
S-07	(1	unit =	100 cubi	c feet	= 748 gallons)	
1	Residential Service Rate billed year around but uses wintertime average consumption for non-wintertime month	\$ ns.	7.21	\$	7.57	5%
2	Non-Residential Service Rate billed year around using actual readings for each billing period.	\$	7.21	\$	7.57	5%

	Sample Impacts	Current Annual	-	osed nual	Annual Change	onthly nange	% Chg.
1 /	Average Residential Customer (17 units bimonthly wintertime use)	\$ 721	\$	757	\$ 36.00	\$ 3.00	5%
2 7	Typical Non-Residential Customer (18 cubic feet bimonthly)	\$ 779	\$	818	\$ 38.88	\$ 3.24	5%

